

called structural characters makes it still more difficult for the student to perceive the true relationship of birds.

5th. The differentiation of species in consequence of isolation, and the production of subspecific forms in consequence of semi-isolation, prove the great importance of interbreeding in preventing the indefinite multiplication of species.

XXIX.—*On some new Paradise-birds.*

By O. FINSCH and A. B. MEYER*.

(Plate VII.)

AMONGST the collectors who at first founded and afterwards materially increased our knowledge of the zoology of South-eastern New Guinea, the principal credit is due to our fellow-countryman, Karl Hunstein, of Friedberg, in Hesse. A first-rate shot, collector, and observer, it was he who, after the failure of the gold-diggers' expedition (in the ranks of which he first visited New Guinea, seven years ago), in company with the well-known collector, Andrew Goldie, made several excursions into the same district of New Guinea and eastwards to Milne Bay and the d'Entrecasteaux Islands. In all these expeditions, which (although considerable collections of natural-history and ethnographical objects were made) had the main object of gold-prospecting, Hunstein, although his name has not hitherto been brought prominently forward, was the real collector †, and to him our thanks are due for the discovery of most of the new birds transmitted by Goldie to Australia and England.

* [Translated, by permission of the authors, from their article in the 'Zeitschrift für die gesamte Ornithologie,' 1885, Heft iv., entitled "Vögel von Neu-Guinea, zumeist aus den Alpenregion am Südostabhänge des Owen-Stanley Gebirges (Hufeisengebirge, 7000-8000 f. hoch), gesammelt von Karl Hunstein," part i.]

† See Sharpe, Ann. Nat. Hist. (5) vi. p. 231 (1880); id. Journ. Linn. Soc., Zool. xvi. p. 423 (1883); Ramsay, Proc. Linn. Soc. N. S. W. viii. p. 15 (1883) et x. p. 242 (1885). *Phonygama hunsteini*, Sharpe (op. cit. p. 442), and *Donacicola hunsteini*, Finsch (Ibis, 1886, p. 1, pl. i.), are both named after Hunstein.

Before 1880 Hunstein, along with Dan. O'Connor and other gold-diggers, had penetrated into the heart of the Owen-Stanley Mountains, as far as the south-western branch of the range, which was named by him "Horseshoe Mountain." On information furnished by the above-named explorers, Finsch, during his sojourn in South-eastern New Guinea in 1882, where he met with them in Port Moresby,



District of Port Moresby.

prepared a rough map of this district, which has not yet been published and from which the map herewith given has been taken.

Hunstein left Goldie and his companions in 1883, and in 1884 undertook on his own account an expedition to the Owen-Stanley Mountains with the intention of getting to a higher elevation than before, because he knew from his

previous experience that by this means only he could expect to make new discoveries, especially among the Paradise-birds. He went first, accompanied by only one native attendant, to the Astrolabe Mountains, which he had already repeatedly visited, and the inhabitants of which he knew well, and met with a friendly reception.

The Astrolabe Mountains constitute a plateau, divided into two districts by a confluent of the Goldie river, the Laloki, which breaks out of them between two steep ridges of rock and forms below them the imposing "Rona Falls." These districts are called—that on the western side "Taburi," and that on the eastern "Schogari." It may be remarked that on the Astrolabe range, the height of which is given at 3824 feet on the English charts, the nights are cold, and the constant precipitation makes a residence very unpleasant for the collector.

After passing by the sources of the river "Camp Welsh," which flows into Hood Bay, Hunstein made his first halt at Moroke, the chief village of the district of the same name, and began his collecting there. Undeterred by the warnings of the natives, the bold explorer pushed forward thence into the Horseshoe Mountain, which lies between Mount Owen-Stanley and Mount Obree of the English charts, a region into which he, as in many other spots in New Guinea, was the first white man to place his foot. Here the vegetation was already sufficient to convince the practised eye that heights had been reached which had never before been attained by any collector in this district. There appeared a world of new trees and new plants. The discovery of a rhododendron with wonderful white flowers, which has been since described by our celebrated fellow-countryman, Baron v. Müller of Melbourne, leaves no doubt of the truth of this. Rhododendrons have also been found in the Arfak Mountains, in North-western New Guinea. But the keen collector was rewarded not only by finding rare plants, but also by the discovery of new species of birds. Amongst those were three beautiful and previously unknown Paradise-birds, to which two more were afterwards added.

It is quite evident that the stay in this mountain-region, where continuous precipitation renders the preparation of birds very laborious and that of plants almost impossible, was an excessively hard task, and one that could be only undertaken by a man of steel and iron, who was at the same time on the best terms with the natives, and a person of untiring industry and unbroken strength. Such a man was Karl Hunstein. Avoiding the scattered habitations of the natives, who were by no means friendly, Hunstein passed his time in the bush, and ascended almost daily the mountain-chain about 2000 feet higher, in order to obtain the beautiful Paradise-birds, of the existence of which he became assured by the feathered ornaments worn by the natives. Amongst these were, along with others, the tail-feathers of the male of the *Epimachus meyeri*, which Hunstein at once recognized as a new species, but of which, in spite of every effort, he only succeeded in obtaining a single female. This bird, as well as *Astrarchia stephaniae* and *Paradisornis rudolphi*, were only to be met with in a hostile district, into which Hunstein could occasionally penetrate when unnoticed by the natives, and not without danger to his own life.

The greater part of the collections now to be described were obtained in this interesting and previously untrodden mountain-region, which, on account of the presence of the rhododendron, may be appropriately termed alpine. Very little was collected at Moroke, and nothing in the coast-district of Port Moresby, where the vegetation resembles that of Australia in its *Eucalypti*, or upon the way from Port Moresby to the Astrolabe range.

It is due to the fortunate incident that one of us, already well known to Hunstein, in whose company he had made a journey in 1882 into the interior from Port Moresby, met the latter in Cooktown, that this very interesting collection has found its way to Dresden, and thus to be published, although after much greater delay than was desirable*.

* The typical specimens have been mostly placed in the Royal Zoological Museum at Dresden.

Besides this first portion treating of the *Paradise-birds* collected, a second paper will be given devoted to birds of other families. We also take this opportunity of mentioning a few species which Finsch obtained from the English collector, McCormac, during his visit to Milne Bay, and which are from the coast-district, no collector in this neighbourhood having yet penetrated into the interior.

A *Paradise-bird* obtained in exchange from the natives on the previously unvisited north-east coast of Kaiser-Wilhelmsland has also turned out to be a new species (*Paradisea finschi*). Lastly, we take this opportunity of mentioning some species belonging to the same district which were obtained by Meyer in his former journey on the coast of the Bay of Geelvink.

Among the nineteen species of *Paradise-birds* mentioned in this memoir, six appear to be new to science, and amongst these are two of new genera, *Astrarchia* and *Paradisornis*. Besides this, we have been able to describe the hitherto unknown females of two species, *Parotia lawesi* and *Lophorhina minor*, as also the hitherto unknown and splendid male of one species, *Amblyornis subalaris*. All these, except *Paradisea finschi*, of Kaiser-Wilhelmsland, come from Horse-shoe Mountain.

Lastly, during the necessary comparisons, we have felt constrained to separate an already known species of *Paradise-bird* from the island of Jobie as *Diphyllodes jobiensis*, and a hitherto overlooked species from the south of the Bay of Geelvink as *Manucodia rubiensis*.

Berlin and Dresden, November 1885.

1. MANUCODIA CHALYBEATA.

Examples of this species from the coast of Milne Bay, opposite the Killerton Islands, agree very well with specimens from Andai, Passim, and Inwiorage, on the Bay of Geelvink (*Meyer*), except that in the former the neck-feathers seem to be more brilliantly coloured and are altogether rather more bluish.

2. MANUCODIA RUBIENSIS, Meyer, sp. nov.

M. chalybeata simillima, sed minor: long. alæ 155–160, caudæ 126–8, rostri 32–33 millim.

Hab. Rubi, Nov. Guin.

From this most southern point of the Bay of Geelvink, which is very remarkable in its ornithology, two examples (*Meyer*) lie before us, which are distinguished by their small size from those of other localities. Besides, the under surface of the neck seems to be green in place of blue, and the curling of the feathers is very slightly developed. The bill is but little stronger than in *Phonygama keraudreni*.

3. MANUCODIA ATRA (Less.).

Examples of this species from the Aroo Islands seem rather larger than those from the Bay of Geelvink (Dorey, Passim, Inwiorage: *Meyer*).

Guillemard (P. Z. S. 1885, p. 646) is of opinion that *M. atra* and *M. chalybeata* are not specifically different, although the form and size of the bill are alone sufficient to prove this idea untenable. Moreover, Guillemard's alleged reason, that it is not probable that two so nearly allied species should occur in the same district, is untenable for New Guinea, as there are many analogous cases known. The same author gives measurements of *M. jobiensis* smaller than those of Salvadori; but these differences are perhaps attributable to sex.

4. PHONYGAMA PURPUREO-VIOLACEA, Meyer, sp. nov.

P. keraudreni similis, sed dorso, alis caudaque purpureo-violaceis, concoloribus, et occipitis collique plumis valde elongatis distinguenda: long. tota 300, alæ 166–167, caudæ 130, rostri 30–31, tarsi 34 millim.

Whole upper surface up to the head and neck beautiful purplish violet; under surface green, with bluish glance, especially on the sides; under surface of wings and tail greyish black. Side-feathers of the head still more lengthened than in *P. keraudreni*, the neck-feathers all around broader and markedly longer, and bluish green in colour, like the whole head, tipped with blue only on the nape. The upper mandible is furrowed longitudinally, of which there is only a

slight appearance in *P. keraudreni*, and the base of the bill is rather narrower.

This species differs from *P. keraudreni* in the uniform coloration of the wings and back, as also in the brilliancy and nuance of the colour, besides in the much lengthened head- and neck-feathers. From *P. hunsteini*, Sharpe (Journ. Linn. Soc., Zool. xvi. p. 442), it differs in its smaller size, which agrees with that of *P. keraudreni*; moreover, there is no blue in *P. hunsteini*, and the head is oil-green, whereas it is bluish green in *P. purpureo-violacea*. Sharpe is of opinion that *P. hunsteini* comes from Normanby Island.

5. *PAROTIA LAWESI*, Ramsay, Pr. Linn. Soc. N. S. W. x. p. 243.

Mr. Ramsay has described only the male of this species, of which the female differs from the corresponding sex of *P. searpennis* more than the male.

Fem. Supra brunnea; capite et collo nigris; corpore subtus brunnescente, nigro transfasciolato; subalaribus obscure cinnamomeis: long. tota 250, alæ 142-144, caudæ 100, rostri culm. 15, rostri hiatus 34, tarsi 45 millim.

The female of *P. searpennis* is silver-grey on the under surface, with undulating punctures of black and yellow, and similar under wing-coverts. That of *P. lawesi* is below bright reddish brown, with black cross markings, and has uniform chestnut-brown under wing-coverts. At the back of the head the feathers are lengthened and are of a dark chestnut-brown narrowly edged with black, and with black bases; the feathers on the sides of the head are not so much lengthened as in *P. searpennis*. Thus, although the upper surfaces of the two females are nearly similar, except for the longer tail of *P. searpennis*, their lower surfaces are altogether different.

The young male of *P. lawesi* is like the female, but is not of so light a red-brown above, has a black neck, and on the under surface is of a deeper and brighter brown-red colour. The length of the tail is 100 millim.

The principal differences between the males of the two species are as follows:—The frontal feathers of *P. lawesi*

form not a broad but a narrow plaque, and their tips converge in the middle into a straight line running backwards; the plaque is narrowed and prolonged behind, where it passes into a dark olive-brown. The neck-shield is of a uniform steel-blue with violet nuance, instead of green and blue. The vinous-red silky tinge of the upper surface is absent; its hue is much paler. The shortness of the tail is also especially noteworthy: in *P. searpennis* it measures 130–135 millim., in *P. lawesi* only 84–88 millim.; so that the female and young male of *P. lawesi* have a longer tail than the adult male.

6. LOPHORINA MINOR.

Lophorina superba minor, Ramsay, Pr. Linn. Soc. N. S. W. x. p. 242 (1885).

Mr. Ramsay has described the male of this new species from South-eastern New Guinea. The female was unknown to him.

Fem. Similis feminae *L. superbæ*, sed supra olivaceo-brunnea, minor, et tænia superciliari in occipite confluenta, variegata, distinguenda: long. tota 220, alæ 120, caudæ 80, rostri culm. 21, rostr. hiatus 30, tarsi 28 millim.

The measurements of the female of *L. superba* are "wing 125, tail 95–100 millim." The head and neck are black in *L. minor* as in *L. superba*, but *L. minor* has on each side a broad superciliary stripe of white-spotted feathers which unite at the nape. In *L. superba* only slight indications of this superciliary stripe are perceptible behind the eyes. In *L. minor* the face and sides of the neck are spotted like the throat, in *L. superba* these parts are black. The lower surface of *L. minor* seems somewhat more yellowish than in *L. superba*, and the back, the smaller wing-coverts, and the tertials as well as the tail are olive-brown instead of dark chestnut-brown. The outer edges of the secondaries are broad and rusty brown in *L. minor*, in *L. superba* they are narrower and brown, and the inner webs of the wing-feathers beneath are broad and bright rusty brown, instead of being uniform blackish brown. Thus the females of the two species are quite distinct.

The principal difference between the males of the two species is in the scaling of the middle portion of the breast-shield, where in *L. minor* each feather bears a tongue-shaped velvety-black stripe, which does not quite reach to the point. Ramsay does not allude to this particular. Besides in *L. minor* the nasal plumes are shorter, while the chin-plumes are longer; the metallic plate at the back of the head is edged with violet, and the whole bird is somewhat smaller. Moreover, the outer feathers of the breast-shield appear to be considerably longer.

In a young male specimen the breast-shield is already somewhat developed, but not so the neck-shield; the colour of the former is reddish violet and already shows the black central stripes on the central feathers. The upper and under surfaces are as in the female, except the wings, which have begun to change. The superciliary stripes do not join at the back of the head, as is the case in the female. The head-shield shows the violet tinge stronger than in the adult male.

ASTRARCHIA, Meyer, nov. gen.

Rectricibus duabus intermediis longissimis, naviculiformibus, superne concavis et rectricibus lateralibus brevibus, a genere Astrapia differt.

7. ASTRARCHIA STEPHANIÆ, sp. nov.

Mas. Pileo nitide cæruleo et viridi-violaceo, fronte, loris et genis nitide viridibus, frontis plumis velutinis, erectis; capitis lateribus plumis longis, velutinis, viridibus, purpureo- et cupreo-violaceo ornatis; scapularibus, interscapulio, dorso, uropygio, axillaribus et hypochondriis nigro-velutinis, sub quadam luce olivaceo-nitentibus; supracaudalibus nigro-velutinis; gula, gutture et collo antico æneo-viridibus, sub quadam luce cærulescentibus, colli lateribus plumis longis ornatis; fascia pectorali lata nigra, sub quadam luce olivaceo et lilaceo nitente, fascia nitidissime cuprea cincta; corpore subtus obscure cupreo-velutino, sub quadam luce viridi; crisso et subcaudalibus nigro-violaceis; tibiis violaceo-nigris; alis et alarum tectricibus nigris, plus minusve purpureo-nitentibus; subalaribus violaceo marginatis; rectricibus duabus intermediis longissimis,

naviculiformibus, superne concavis, nitide roseo-violaceis, subtus nigris; rectricibus lateralibus brevibus, superne concavis, supra et subtus nigris; rectricum duarum intermediarum scapis supra ad basin albis; rostro nigro; pedibus nigris; iride nigra: long. tot. 840, al. 156, caud. 64, rostr. 25, rostr. hiat. 30, tarsi 41 millim.

Male. Nasal feathers, directed rather forwards, velvety black tipped with shining metallic green and blue; loreal feathers recumbent, directed forwards, shining green; region round the eye likewise metallic green; rest of the head a mixture of metallic green, blue, violet, and purple. Lengthened feathers on the sides of the head velvet-black, with metallic reflections passing from green into violaceous copper-colour and bronze. Neck and upper back velvety black with greenish bronzy reflections; the feathers long and loose; upper tail-coverts black. Wings above black, secondaries on the outer webs, tertiaries on both webs, and upper wing-coverts with slight violet reflections; lower surface of wings blackish, under wing-coverts partially edged with violet. Chin, throat, and front of neck steel-green, with metallic reflections; the covered basal portions of the feathers brownish black, separated from the broad green apical portions by a concealed narrow blue band; the whole of the feathers of the neck-shield in some lights blue, and lengthened, except those on the sides of the throat. A broad band across the breast, almost two centimetres in diameter, is velvet-black, with bronzy, greenish, blue, and violet reflections; this is bordered below by another band of metallic copper four millimetres in breadth. Belly velvety black, with copper-brown and green reflections. Under tail-coverts black, with a bluish tinge. The flanks and axillaries resemble the upper surface. The thighs are violet-black. Tail black; the webs of two elongated middle rectrices, which are turned upwards and arched together, are of a delicate rosy purplish with metallic gloss; the shorter and less concave lateral rectrices are less metallic, and the bands of shading are less pronounced. The basal third of the shafts of the two middle tail-feathers on their upper surface are clear white; the rest of the shafts black. Bill, feet, and irides black.

It is especially the form of the tail that gives us the opportunity of separating this new species generically, inasmuch as the subdivision of the Paradise-birds into genera has now-a-days been carried to so great an extent, whether rightly or wrongly we need not at the present moment inquire. The webs of the two central tail-feathers (about 10 centimetres broad and 64 long) are arched upwards towards one another so as to form a sort of open channel; towards the ends their edges approach so near one another as to constitute a broadened pipe; the webs of the lateral feathers are similarly turned up, but to a less extent. While the tail of *Astrapia nigra* is regularly graduated, in that of *Astrarchia* the graduation is irregular. But besides this, the deviations from *Astrapia* are so numerous that the generic separation can be well substantiated.

In *Astrarchia stephaniae* the lengthened feathers of the chin are wanting, and the feathers of the neck-shield are not curved upwards, but smooth and recumbent. Besides, in *Astrarchia* the large lateral head-plumes are wanting, although the corresponding feathers are somewhat elongated. Again, the metallic band from the eye down the neck to the breast and the green band at the back of the neck are both absent, besides which there are other minor differences in coloration, which it is not necessary to enumerate. It need only be remarked that the colour of the middle tail-feathers is more blue in *Astrapia nigra* than in *Astrarchia stephaniae*.

We have only the male of this species, which has been named by Finsch after the Archduchess Stephanie, Crown-Princess of Austria.

8. EPIMACHUS MEYERI, Finsch, sp. nov.

Fem. Supra brunnescenti-olivacea; capitis plumis obscure fuscis, rufo marginatis, nucha rufescente; loris et capitis lateribus nigrescentibus, clarius variegatis; gutture iisdem coloribus, sed subtiliter transfasciolato; corpore subtus et subalaribus fasciis alternis nigrescentibus et brunnescenti-albidis ornatis; alis dorso concoloribus, subtus fuscis; cauda olivacea, supra vix brunnescente

tincta, subtus pallidiore ; rostro et pedibus nigris ; iride cærulea : long. tot. circa 540-550, al. 158-160, caud. 320, rostr. 73, tars. 42 millim.

Of this species we have only a female, which, however, is easily distinguished from the female of the allied *E. speciosus* by its more olive-coloured upper surface, by the want of the rusty-red colour on the wings, by the brighter reddish brown of the head, which is also extended on to the nape, by the scale-like appearance of the head, and, lastly, by the fine undulations of the whole under surface. The bright cross stripes are more olive-yellow than in *E. speciosus* ; the under surface of the wings is uniform blackish grey with scarcely brighter margins instead of the reddish-brown inner webs of *E. speciosus*, and the tail has no reddish tinge. The bill is but slightly longer than in *E. speciosus*, but considerably more compressed and less curved.

That this is not the unknown female of *E. ellioti*, Ward, is evident from the length of the bill, which in *E. ellioti* is 50 millim. This is besides unlikely on other grounds. In *E. speciosus* the bill is of about the same length in both sexes. It is evident that the unknown male of *E. meyeri* will probably be found to differ in not unimportant points from *E. speciosus*.

9. DREPANORNIS CERVINICAUDA, Selater.

D. albertisi similis, sed minor et pallidior.

The difference in the general size of the two species is not very considerable, but the measurements of the bill and tail are sufficiently different to make their constant variations of importance when accompanied by appreciable diversities in colour.

The whole upper surface in *D. cervinicauda* is brighter, the back is more of a yellow-olive instead of brownish olive, as in *D. albertisi* ; the lower back and rump rusty yellow instead of rusty red, the tail pale yellow instead of rusty yellow ; the edgings of the inner webs of the tertiaries are like the tail, whilst in *D. albertisi* the tail is much darker. The reddish-blue sheen of the head, which is so apparent in *D. albertisi*, is altogether, or almost altogether, wanting in

D. cervinicauda; the tufts of feathers above the eyes are very small and consist only of a few feathers, whereas they are larger in *D. albertisi*; the naked spaces on the back of the head are less extended in *D. cervinicauda* than in *D. albertisi*; the underside of the tail in *D. cervinicauda* is not much brighter than in *D. albertisi*, so that there is a much greater contrast between the two surfaces in the latter. Lastly, the inner webs of the inner surface of the wings are broadly edged with isabelline colour in *D. cervinicauda*, whereas in *D. albertisi* these edgings have a strong brownish tinge.

The females are still more different in colour, inasmuch as in *D. albertisi* the whole upper surface is rusty brown, while in *D. cervinicauda* it is olive with the exception of the tertials and the rump, which are rusty brown, but always appreciably brighter than in *D. albertisi*. Again, the tail is considerably brighter above, but nearly similar below. The under surface of the body of *D. cervinicauda* is also rather brighter, and apparently less regularly banded.

Drepanornis bruijini, Oust., from the eastern coast of the Bay of Geelvink, is a perfectly distinct species from *D. albertisi* and *D. cervinicauda*, as Oustalet's description * and examples of it now before us (from $136\frac{1}{2}^{\circ}$ to 137° E. long.) show. Especially remarkable is the stronger and light-coloured bill. The full plumage of this species is not yet known, unless it turns out that both sexes are clad alike in dull plumage as in the specimens already obtained.

Drepanornis cervinicauda was placed by Salvadori (Orn. Pap. ii. p. 553 and iii. p. 552) under *D. bruijini* and *D. albertisi* with a quære, by Ramsay (Proc. L. S. N. S. W. iv. p. 469) and Sharpe (Journ. Linn. Soc., Zool. xvi. p. 445) cursorily under *D. albertisi*, until Selater (P. Z. S. 1883, p. 578) distinguished the southern form as *D. albertisi cervinicauda*, and Sharpe figured it in Gould's 'Birds of New Guinea' (pt. xviii. 1884, pl. 1) as *D. cervinicauda*. Our view is that the specific rank is correct in this case, as in that of so many other representative species in the ornithology of New

* Cf. Oustalet, Bull. Assoc. Sci. de France, 1880, p. 172; Ibis, 1881, p. 164; Guillem. P. Z. S. 1885, p. 649.

Guinea. As regards the shades of coloration now in question, the figures of *D. albertisi* given by Sclater (P. Z. S. 1873, pl. xlvii.) and Gould (B. New Guin. pt. i. pl. iii. 1875) are of little value.

10. *CRASPEDOPHORA INTERCEDENS*, Sharpe.

Milne Bay.

To distinguish between this species and *Craspedophora magnifica* is difficult; the differences are certainly small. It seems that in the male the upper surface, especially on the tertiaries, in a particular light, when the direction of the eye is nearly parallel to the upper surface of the bird, tends rather more to blue than to purple as in *C. magnifica*; other obvious differences it is not easy to discover. On the other hand the female differs still more, as Sharpe (Journ. Linn. Soc., Zool. xvi. p. 444) has pointed out. Certainly the upper surface is brighter and the eye-stripe is not blackish; but that the lower surface is different, as Sharpe maintains, is not apparent in the examples from Milne Bay.

The differences from *C. alberti* are also pointed out by Sharpe, *l. c.*, and those of the female of the last named species agree with the characters given by Salvadori (Orn. Pap. ii. p. 558). The upper surface of *C. alberti* passes into olive, which is not the case in *C. intercedens*, although it does not appear to have so much of a chestnut-brown tinge as *C. magnifica* (*cf.* Salvadori, *op. cit.* p. 553). But I do not doubt of the constant difference of the Southern New-Guinea form from those of North-western New Guinea and Australia, although the divergence is small. *C. intercedens*, however, seems to approach more nearly to *C. magnifica* than to *C. alberti*.

11. *PARADISEA FINSCHI*, Meyer, sp. nov.

Mas. P. minori similis, sed minor, et dorso, uropygio et corpore subtus brunnescentibus: long. rostri 31, tarsi 40 millim.

Hab. Nova Guinea septentrionalis-occidentalis, Karan.

"I obtained only imperfect skins of this species from the natives of the north-east coast (Emperor William's Land) at

no? / 142° 30' E. long., about 60 miles west of D'Urville Island : on the Admiralty chart 'Passir Point' is marked here, but ~~on~~ such point exists in reality. Only at this one spot on the north coast did the natives bring Paradise-bird skins for sale along with ornamental plumes of *Dasyptilus*. All skins from this locality are small in dimensions." (*Finsch*.)

The single native skin which constitutes the type of this species has the brown of the upper surface not pure chestnut, as in *P. minor*, but paler brown, and the under surface is not chestnut-brown with a vinous tinge as in *P. minor*, but more of a reddish brown. These variations in colour are very noticeable. Besides, *P. finschi* differs from *P. minor* in the size and the form of the bill, which is more slender and elongated in the latter ; its length in *P. minor* reaches 32-35 millim. in specimens in the Dresden Museum. There seems to be also a difference in the colour of the upper mandible, which in *P. finschi* has a light-coloured culmen.

In Western New Guinea *P. minor* occurs, in Southern New Guinea *P. novæ-guinæ* (Salvad. Orn. Pap. ii. p. 609), the latter approaching *P. apoda* of Aroo. From the north-east of the great island no example of this form has yet been brought, although we are assured of its occurrence there, for example in Astrolabe Bay. It may be presumed that the north-eastern form will be nearer to *P. minor* than to *P. apoda*, because the great central chain of New Guinea running from east to west cuts off the north from the south. It would be interesting to ascertain whereabouts on the north coast *P. minor* passes into *P. finschi*.

[The first species of Paradise-bird obtained from Emperor William's Land bears appropriately the name of its discoverer, who at the same time was the first to mark out the new German colony.—M.]

12. PARADISEA RAGGIANA, Sclater.

Astrolabe Mountains and Milne Bay.

At fifteen miles in the interior from Port Moresby, according to Hunstein, this species is first met with, but does not occur on the Horseshoe Mountain. It extends to Basilisk Island and westward to Bentley Bay.

Examples from Milne Bay seem to have the brownish-violet breast-shield rather darker and the parts immediately below also darker than examples from the Astrolabe Mountains. In the latter also there appears to be a yellowish nuance on the green throat-feathers, instead of the bluish nuance of the former. The Milne-Bay specimens measure about half a millimetre more in the length of the wing, and also show a rather more yellowish nuance on the undersides of the wings and tail when the direction of the eye is parallel to the light falling upon it. But all these apparent differences are very slight, and there is not sufficient evidence of their constancy to separate the birds as local forms. At the same time it is right to notice these small differences occurring in neighbouring localities in order to arrive at a correct knowledge of the variation of species in connection with geographical distribution.

PARADISORNIS, Meyer, gen. nov.

Rostro altiore, magis compresso et curvato, rectricibusque duabus intermediis angustis, spatuliformibus, a genere *Paradisea* differt.

13. PARADISORNIS RUDOLPHI, sp. nov. (Plate VII.)

P. rudolphi mas ab omnibus *Paradiseis* hucusque notis paracercorum plumarum forma et colore cæruleo-cyaneo differt. Sincipite, loris, genis, mento, gula et gutture plumis velutinis, nigris, nitide obscure flavo-virescentibus; regione postoculari nuda; oculis supra et subtus plumis nitide albis, longis, sericeis ornatis; occipite obscure purpureo-castaneo nitente; nucha et interscapulio nitide nigrescentibus, plumis basin versus cinerascentibus, medio cyaneis, apicibus nitide nigrescentibus; dorso et uropygio cærulescenti-nigro variegatis; cauda supra cærulescente; alis supra cærulescenti-cyaneis, remigum pogoniis internis nigris, alarum tectricibus cyaneis, tertiariis interne clarius cyaneo marginatis; pectoris plumis longis nigrescentibus, abdomen versus virescenti-cæruleo nitentibus; abdomine et tibiis nigris, nitentibus; cauda subtus cyanescente, subcaudalibus virescenti-nigricantibus; alis subtus fuscis, remigum primariorum



J.G. Keulemans lith.

Hanhart imp.

PARADISORNIS RUDOLPHI.

marginibus internis cinereis, secundariorum cyanescentibus; subalaribus brunnescentibus, fusco variegatis; axillaribus subtus virescenti-cyaneis, supra brunnescentibus; paracercorum plumis longis, rectis, subrigidis, exterius brunneis, intus ad basin ultramarinis, apicem versus violaceo-lilacinis, brevibus, plus minusve curvatis, ad basin cyaneis, medio ultramarinis, apicem versus cyaneis paulo virescentibus, harum tectricibus brevioribus nigrimis, longioribus curvatis, pulchre castaneis; rectricibus duabus intermediis longissimis, angustis, spatuliformibus, supra violacescentibus, subtus nigris, spatulis macula cyanea ornatis; rostro flavido-albo; pedibus brunnescentibus (?); iride brunnea: long. tot. circa 270, al. 160, caud. 80, rectr. intermed. 440, rostr. culm. 38, a nar. 29, tars. 37-38, paracerci plumis longis 270 millim.

Fem. Capite, collo et summo dorso nitide obscure purpureo-nigris, colli plumis lateralibus et posticis longis; palpebris sicut in mari; summi dorsi plumis longis, velutinis, parte media oblecta et subtus virescenti-cyaneis; dorso imo et uropygio virescenti-nigris; supracaudalibus et cauda cyanescenti-cæruleis; alis sicut in mari; gula virescenti-nigra; gutture et pectore summo obscure castaneis, obsolete nigro transfasciatis, plumis subtus plus minusve virescenti tinctis; abdomine summo virescenti-brunneo, medio et imo brunnescentibus, nigro transfasciatis, medio plumarum apicibus cyaneis, omnibus subtus cyaneo-virescentibus; hypochondrii plumis longis, obscure brunneis, nigro transfasciatis, subtus virescenti-cyaneis; tibiis nigris; crisso et subcaudalibus rufescentibus; cauda subtus virescenti-cyanea transfasciolata; rostro flavido-albo; pedibus brunnescentibus(?); iride brunnea: long. tot. circa 270, al. 153, caud. 94, rostr. culm. 32, rostr. hiat. 36, tars. 48 millim.

Male. Front and sides of the head, neck, and shoulders satiny black, with dark yellowish-green metallic sheen, which disappears behind; eyelashes long, white, silky; behind the eye a naked spot; back of head and nape dark cherry-brown. Back greenish blue mixed with black. Wings above blue, in front brighter, the lesser and middle coverts edged with bright blue, as also the tertiaries on the inner webs; inner webs of the wings black; breast-shield with long feathers, blackish, in certain lights alternately

glancing bluish and greenish ; towards the belly terminating in a well-defined broad blue cross band, and on the sides passing into the ultramarine of the ornamental plumes. Belly shining satiny black. Under wing-coverts brownish mixed with dark grey. Axillaries exteriorly brownish, interiorly bluish green. Under surface of the wings blackish grey, with brighter inner edgings on the primaries and bluish on the secondaries. The ornamental plumes are divided into two portions : the larger outer ones are rather rigid, and on the underside are bright ultramarine blue at their bases and pass into lilac ; on their upper sides, *i. e.* on the hinder sides, they are shining brown ; the shafts of these feathers above at their bases are white, with the end half brown, below they are entirely bright brown. The smaller inner ornamental plumes, which are in part strongly curved inwards, are bright blue at their base, in the middle portion ultramarine or cobalt-blue, passing towards the apices into bright greenish blue ; upon the smaller ornamental plumes lie as coverts a row of shortened chestnut-brown feathers strongly curved, and upon part of them another row of black feathers. The tail is blue above with brighter edgings, and dirty greenish at the base ; below it is uniform bright blue. The two lengthened middle tail-feathers carry at their bases brownish webs on a white shaft ; at the end of the other tail-feathers these webs disappear almost entirely, and then again gradually increase to a breadth of half a centimetre the two together ; the spatula-shaped tips are about 7 millim. in diameter ; the colour of these feathers is above black changing to violet ; below black, with a light bright blue spot at the tip ; the shafts are black both above and below. The bill is yellowish white ; the feet (in the dried skin) brownish horn-colour ; the iris (according to Hunstein's information) is brown.

Female. Flank-feathers loose and lengthened, on their inner sides greenish blue ; belly rusty reddish with dark cross bands ; the feathers on their undersides bluish green. Tail beneath with lightly marked shadings, which disappear towards the tail-end. Thighs black. Feathers of the upper

back long, loose, satiny black, beneath greenish blue. Side-feathers of the hinder neck lengthened and erectile.

This species has been named by Finsch *Paradisornis rudolphi*, in honour of his Imperial and Royal Highness Rudolph, Crown-Prince of Austria, the high and mighty protector of ornithological researches over the whole world.

14. *DIPHYLLODES CHRYSOPTERA*, Gould.

Mas. Mari *D. magnificæ* similis, sed alis supra pulchre auriatis et interscapulio brunnescenti-sanguineo diversus.

Hab. Nova Guinea merid.-orientalis.

This species was separated from *D. magnifica* by Gould upon examples of unknown origin. But subsequently it was supposed that its habitat had been ascertained to be Jobi (*cf.* Salvadori, Orn. Pap. ii. p. 641), until Sharpe (Journ. Linn. Soc., Zool. xvi. p. 444) announced that he had compared Gould's types with examples from Southern New Guinea, and found them to be perfectly identical. He thus raised the question whether Jobi birds agree altogether with Gould's types and with specimens from Southern New Guinea. Examples from Jobi now lie before us, and are not identical with those from Southern New Guinea. Gould's types were certainly from Southern New Guinea, and to the species from that country the name *chrysoptera* must therefore belong, whilst the Jobi bird must be separated. It is true that Gould's figure does not agree with examples from Southern New Guinea, as Salvadori has already pointed out, but Sharpe's decision as to the full identity of Gould's types with specimens from this locality settles the question.

D. chrysoptera differs from *D. magnifica* not only in the bright orange-yellow colour of its wings, as given by Sharpe (Cat. Birds, iii. p. 175), but also in the blood-red colour of the hind neck-feathers, which in *D. magnifica* are only chestnut-brown or dark brownish red. Besides, the colour of the head, which in *D. magnifica* is brownish, is light orange-brown in *D. chrysoptera*, and the colour of the belly is bright purple, whereas in *D. magnifica* it has but a trace of this colour, and the breast-shield is more of a blue-green than

a grass-green. The females are likewise different. The head, rump, and under tail-coverts are browner in *D. chrysoptera* than in *D. magnifica*, and the feathers of the front of the head have a very noticeable orange-brown tinge, reminding one of these parts in the male. The dimensions are also different :—

<i>D. chrysoptera</i>	{	♂: wing	105–108·5,	tail	38–40 millim.
		♀: „	103–112,	„	56–60 „
<i>D. magnifica</i>	{	♂: „	116,	„	50 „
		♀: „	112,	„	64 „

It is surprising that Sharpe says nothing about these differences.

15. *DIPHYLLODES JOBIENSIS*, sp. nov.

Paradisea speciosa, part., Schlegel, Ned. T. Dierk. iv. pp. 17, 50 (1871); Rosenberg (nec Bodd.), Reis. Geelv. p. 56 (1875); id. Mal. Arch. p. 557 (1879).

Diphyllodes chrysoptera, Meyer, Mitth. Zool. Mus. Dresden, i. p. 6, Anm. (1875); Beccari, Ann. Mus. Civ. Gen. vii. p. 710 (1875); Salvadori, ibid. p. 971 (1875), ix. 192, no. 21 (1876); Sharpe, Cat. iii. p. 175 (1877); Salvadori, Orn. Pap. ii. p. 641 (1881).

Mas. Mari *D. magnificæ* similis, sed alis supra flavo-aurantiacis diversus.

Hab. Ins. Jobi.

The male of *D. jobiensis* is distinguished from that of *D. magnifica* by the orange-yellow colour of the wings, which have a tinge of ochre, and by the slight bronzy and brown glance on the belly. The length of the wing is 113–114 millim., of the tail 48–50 millim. The female is very different from that of *D. magnifica*, being of a brownish grey instead of olive-brown, except on the edgings of some of the secondaries, which are more brownish; the underside is of a clearer whitish. Length of the wing 113 millim., of the tail 65 millim.

16. *DIPHYLLODES HUNSTEINI*, Meyer, sp. nov.

Mas. Mari *D. chrysopterae* similis, sed alis supra aurantiacis miniatis diversus: long. tot. circa 185, al. 111–112,

caud. 53, rostr. hiat. 32, rostr. culm. ab apice plum. front. 18·5, tars. 29 millim.

Hab. Nova Guinea (Horseshoe range).

An immature male, but differing from *D. chrysoptera* in such a way that it is not possible to ascribe the peculiar characters to its stage of life. The colour of the wings is much more brilliant than in *D. chrysoptera*; the nasal plumes are longer; the back and rump are still more of a reddish brown; the belly is not violaceous, but like that of *D. magnifica*, and tinged with greenish on the sides; the breast-shield is rather grass-green than bluish green; the inner webs of the wing-feathers beneath more reddish than in *D. chrysoptera*. The stage of the development of the tail is interesting; one of the two elongated middle tail-feathers has on both sides broad webs of a brownish colour (the broadest part of the whole feather measures 9 millim. across), with a central stripe of a metallic reddish violet, while the other has already acquired the narrow shape and bluish-green metallic colour of the adult. The great length of the remaining tail-feathers may perhaps be explained by the fact that the female *Diphyllodes* has usually a longer tail than the male. It may be objected that it is possible that the immature form of this *Diphyllodes* may be more brilliant than the adult; but on the other hand a young male of *D. magnifica*, almost in the same stage as the preceding, does not differ in the colour of the wings from the adult bird.

17. AMBLYORNIS SUBALARIS, Sharpe.

Sharpe described in 1884 (Journ. Linn. Soc., Zool. xvii. p. 408) only the female of this species. The male possesses a deep orange-red erectile hood: it is otherwise like the female which Sharpe describes, but altogether rather more olivaceous, and has bright shaft-stripes on the throat; the reddish orange-coloured hood is bordered on the sides with dark brown, and has dark tips on some of its middle feathers; the front is dark as in the female. The immature male has more black on the head. The bill is considerably smaller than in *A. inornata*.

18. *ÆLURÆDUS STONEI*, Sharpe.

A specimen of this species has a greenish head with yellowish stripes in the middle, and a yellowish forehead, no doubt the remains of the immature plumage.

19. *ÆLURÆDUS MELANOCEPHALUS*, Ramsay.

This species has been lately founded by Ramsay (Proc. Linn. Soc. N. S. W. vii. p. 25). The following diagnosis will supplement his description:—

Æ. arfakiano, Meyer, similis, sed fascia nuchali nigra et maculis tectricum alarum nullis, jugulo et gutture variegatis, pectore et abdomine brunnescentibus diversus: long. tot. circ. 290, al. 152, caud. 120, rostr. 33, tars. 44 millim.

This species comes between *Æ. arfakianus* and *Æ. melanotis* of Aroo, but is nearest to the former. In its throat being not black it approaches *Æ. melanotis*, although this part is somewhat dark in *Æ. melanocephalus*. In its dark head it resembles *Æ. arfakianus*, but there is no sharply defined cervical band. The uniform green wing-coverts remind one of *Æ. buccoides* of Western New Guinea and *Æ. stonei* of Southern New Guinea. *Æ. melanocephalus* seems to be darker than *Æ. arfakianus* on the under surface of the tail, and to have a narrower terminal band. The feathers of the throat in *Æ. melanocephalus* are black at the bases and tips, but have a broad white intermediate band, so that the white predominates, whereas in *Æ. arfakianus* the black predominates. The whole under surface is washed with olive-brown, and is much darker than in *Æ. arfakianus* and *Æ. melanotis*.

XXX.—*Description of a new Ground-finch from Western Peru.* By P. L. SCLATER, M.A., Ph.D., F.R.S.

(Plate VIII.)

My excellent and much valued correspondent, Prof. William Nation, of Lima, has lately sent me a single skin of a Ground-finch from the upper valley of the Rimac, which seems to belong to an undescribed and very distinct species